

REMARKS

Upon entry of the Amendment, Claims 1-4, 6-7 and 9-16 will be pending in the application. Claim 1 is amended to recite “at least three or more plural coating layers which are different in refractive index to thereby cause coloring of said multilayer-coated powder”. Support can be found, for example, at page 7, first full paragraph, and at Examples 1-5 on pages 29-45 of the specification as originally filed in this National Stage Application under 35 U.S.C. § 371. No new matter is added. Claims 5 and 8 were previously canceled.

Entry of the Amendment along with reconsideration and review of the claims on the merits are respectfully requested.

Applicants appreciate the Examiner's acknowledgment and returned initialed copies of Applicants' Information Disclosure Statements filed on November 21, 2003, and February 4, 2004.

Claim Rejections

A. Claims 1-3, 6-7, 9-11 and 14-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by JP 01247155 (JP '155).

The Examiner cited JP '155 as disclosing multilayered composite particles comprising solid particles, a titanium dioxide layer formed by treating the surface of the particles with an organic titanate, and a hot melt adhesive layer coated on the surfaces of the titanium oxide layer according to Applicants' claimed invention.

B. Claims 4, 12 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 01247155 (JP '155) in view of US 3,767,443 to Clark et al.

The Examiner recognized that JP '155 fails to teach the claimed metal alloy layer, thickness of the layer or the coating of individual particles. However, the Examiner considered that it would have been obvious to optimize the layer thickness of the layers (formed by titanium oxide and organic resins) on the multilayered coated particle of JP '155 because Clark is said to suggest that layer thickness and refractive index are important in controlling the optical properties and thus retaining or eliminating the colored effects caused by optical interference.

Applicants respond as follows.

Claim 1 has been amended to recite that the multilayer-coated powder comprises "at least three or more plural coating layers which are different in refractive index to thereby cause coloring of said multilayer-coated powder".

On the other hand, JP '155 describes the benefit that the multi-layered composite particles are coated of resin having poor adhesion of solid particles, such as polyolefin, without peeling, such that they provide high dispersibility of uncoagulated particles when used as a spacer for a liquid crystal cell (Abstract). However, JP '155 only describes two layers on a base particle, i.e. a solid particle upon which a titanium dioxide layer is formed, followed by coating that layer with a hot melt adhesive layer to form "multilayered composite particles".

In the present invention, the plural coating layers differing in refractive index impart color to the powder by a reflection and interference phenomenon, whereas JP' 155 has no description with regard to color. Moreover, a spacer for a liquid crystal, such as that taught by JP '155, cannot be colored in the first instance. This is because a colored spacer for liquid crystal cell would have a negative influence on the liquid crystal display panel.

Each of Applicants' working examples comprises three or more coating layers for achieving the range of colors of the present invention not taught or suggested by JP '155. The amendment to claim 1 to require "at least three or more plural coating layers" clearly distinguishes over JP '155. Moreover, as discussed above, the composite particles of JP '155 adapted for use as a spacer in a liquid crystal cell ordinarily would not be colored, and in any event, JP '155 has no description with regard to color. The amendment to claim 1 to recite "to thereby cause coloring of said multilayer-coated powder" thus further distinguishes from JP '155 in this respect. Accordingly, the characteristics of the present invention as set forth in amended claim 1, are entirely different from those of JP '155.

Applicants rely on the response to the rejection of at least claim 1 with regard to rejection of the dependent claims. Furthermore, Clark et al fails to make up for the deficiencies of JP '155. As discussed in previous responses, the particle of Clark et al has no core, and is produced by removing plural layers from a belt, followed by comminuting. Accordingly, the particle does not have a core on which plural layers have been coated, whereas the powder of the present invention requires a core (base particle) surrounded by plural coating layers which are different from each other in refractive index.

Moreover, in Clark, a peak or bottom is not corrected, and optimization of wavelength is not taken into account as required, for example, by present claim 12. Clark discloses a formula corresponding to equation (1) at column 6, lines 25-26. However, the powder of the present invention is brightly covered because the wavelength of the peak or bottom is made uniform

among the constituent layers by correction as set forth in equation (2) of present claim 12. None of this is disclosed by the prior art relied upon by the Examiner.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a).

Double Patenting Rejection

Claims 1-7 and 9-15 were rejected for obviousness type double patenting over four patents to Atarashi et al. (US '466, US '118, US 085 and US '280), for the reasons given in the Office Action.

The Examiner considered that both the claimed invention as well as the patented claims recite the same metal or metal oxide layers used for coating; that claim 1 of the US '118 patent and the US '085 patent specifically recite the thickness that is also claimed in Applicants' dependent claims; and that the claimed differences are not the components but only relate to their properties, which are said to be inherent.

Applicants respond as follows.

The present claims require a powder wherein at least one of the coating layers is an organic layer, and having a constitution of coating layers different from that of the four asserted U.S. Patents. Applicants further emphasize that the present invention now requires at least three or more plural coating layers, and further recites the effect of the different refractive indexes of the coating layers (i.e., to thereby cause coloring of said multilayer-coated powder).

Accordingly, Applicants respectfully request reconsideration and withdrawal of the obviousness type double patenting rejection.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



John K. Shin
Registration No. 48,409

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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